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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/736,067	12/13/2000	Paul W. Jones	81596PCW	7724

7590 08/12/2004

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EXAMINER	
KIM, CHONG R	

ART UNIT	PAPER NUMBER
2623	12

DATE MAILED: 08/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/736,067	Applicant(s) JONES ET AL.	
	Examiner Charles Kim	Art Unit 2623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 June 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *41-45 and 49-51* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *41-45 and 49-51* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *26 April 2001* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on June 9, 2004 has been entered.

Declaration Under 37 CFR 1.132

2. The declaration under 37 CFR 1.132 filed May 12, 2004 is insufficient to overcome the rejection of claims 41-45, 49-51 based upon Wen et al., U.S. Patent No. 6,130,741 as set forth in the last Office action because: it is unclear that the applicant invented the subject matter disclosed in the reference **and** that what is being claimed in the instant application; therefore, the applicant's declaration does not appear to be an "unequivocal declaration", see MPEP 716.10. Furthermore, the declaration appears to be ambiguous due to its switching from the third person language (he is...), to first person language (I am...), and back to third person language (he declares...).

Response to Amendment and Arguments

3. Applicant's amendment filed on May 10, 2004 has been entered and made of record.

4. In view of applicant's amendment, the claim objections are withdrawn.

5. In view of applicant's amendment, the 112 second paragraph rejections are withdrawn.

6. Applicant's arguments with respect to claims 41, 42, 44, 46, 48 have been considered but are moot in view of the new ground(s) of rejection.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

7. Claim 41 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 6,130,741, in view of U.S. Patent No. 6,654,501. Although the conflicting claims are not identical, they are not patentably distinct from each other because any differences would have been obvious to one of ordinary skill in the art. Furthermore, any features lacking in claim 1 of the '741 patent would have been obvious in view of the '501 patent.

Claim 41 of the instant application recites "determining a film grain noise characteristic" in line 5, which corresponds to "means for storing the film property" in claim 1, line 7 of the '741 patent. Note that claim 1 of the '741 patent does not recite that the film property is a film

grain noise characteristic. However, Official notice is taken that film grain noise was exceedingly well known in the art as a film property. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify the film property of claim 1 of the '741 reference so that it comprises film grain noise. The suggestion/motivation for doing so would have been to optimize the amount and the reliability of the embedded information depending on the film grain noise, thereby preserving the high quality of the developed photographic image.

Claim 41 of the instant application recites "producing a watermark signal that includes the film grain noise characteristic" in lines 6-7, which corresponds to "means responsive to the stored the film property and the associated information for modifying a predetermined number of pixel values with the associated information" in claim 1, lines 10-12 of the '741 patent.

Claim 41 of the instant application recites "combining the watermark signal with the image to produce a watermarked image that contains perceptible, but not objectionable watermark by having the watermark include a characteristic that is consistent with the film grain noise characteristic" in lines 8-11, which corresponds to "the associated information is embedded in the digital image" in claim 1, lines 13-14 of the '741 patent. Note that claim 1 of the '741 patent does not recite that the watermark is perceptible and not objectionable. However, this would have been obvious in view of the '501 patent. For example, the '501 patent discloses a watermark that is perceptible, but not objectionable (col. 4, lines 53-60). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify claim 1 of the '741 patent so that the watermark is perceptible, but not objectionable, as disclosed in the

'501 patent. The suggestion/motivation for doing so would have been to provide watermarks in an image in a perceptually lossless manner.

Drawings

8. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "watermarked image that contains a perceptible, but not objectionable watermark" in lines 9-10 of claim 41 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claims 41-45, 49-51 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Referring to claim 41, the phrase "substantially consistent" in line 11 renders the claim indefinite because it is unclear what is meant by the term "substantially". Appropriate correction is required.

Claims not mentioned specifically are dependent from indefinite antecedent claims.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. Claims 41, 42, 44, 49 are rejected under 35 U.S.C. 103(a) as being obvious over the combination of Acharya et al., U.S. Patent No. 6,654,501 ("Acharya") and Wen et al., U.S. Patent No. 6,130,741 ("Wen").

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). For applications filed on or after November 29, 1999, this rejection might also be overcome by showing that the subject matter of the reference and the claimed invention were, at the time the invention was made, owned by the same person or

subject to an obligation of assignment to the same person. See MPEP § 706.02(l)(1) and § 706.02(l)(2).

Referring to claim 41, Acharya discloses a method for embedding a watermark in an image, wherein the watermark is perceptible and includes binary message data (col. 5, lines 10-17), comprising the steps of:

a. producing a watermark signal that includes noise characteristics (col. 3, lines 57-59)

b. combining the watermark signal with the image to produce a watermarked image that contains perceptible, but not objectionable watermark by having the watermark include a characteristic that is consistent with the noise characteristic (col. 4, lines 53-60).

Acharya does not explicitly disclose that the noise characteristics comprise film grain noise characteristics. However, this feature was exceedingly well known in the art. For example, Wen discloses a method for embedding a watermark in an image wherein the watermark includes a characteristic that is consistent with a film grain noise characteristic (col. 4, lines 37-52, col. 5, lines 23-25, and figure 3).

Acharya and Wen are combinable because they are both concerned with watermarking an image based on noise characteristics. Acharya is concerned with a watermarking process that maintains the quality of the image (Acharya, col. 3, lines 63-66). Wen provides a reliable watermarking method that allows the quality of the image to be preserved even though it contains embedded information (Wen, col. 2, lines 14-25). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify the noise characteristics of Acharya so that it comprises film grain noise characteristics, as taught by Wen. The

suggestion/motivation for doing so would have been to preserve the quality of the watermarked image, thereby enhancing the watermarking process. Therefore, it would have been obvious to combine Acharya with Wen to obtain the invention as specified in claim 41.

Referring to claim 42, Wen further discloses a step of determining the film grain noise characteristic that comprises defining a standard deviation (col. 4, lines 53-54 and figure 4).

Referring to claim 44, Wen further discloses that the step of producing a watermark signal comprises scaling the watermark signal to correspond to the standard deviation as a function of image signal level (col. 4, lines 53-58 and col. 5, lines 33-61).

Referring to claim 49, Acharya further discloses the step of removing an existing noise characteristic prior to combining the watermark signal having the noise characteristic (col. 3, lines 1-4).

11. Claims 43, 45, are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Acharya et al., U.S. Patent No. 6,654,501 ("Acharya"), Wen et al., U.S. Patent No. 6,130,741 ("Wen"), and Gray et al., U.S. Patent No. 5,641,596 ("Gray").

Referring to claim 43, Acharya and Wen do not explicitly disclose that the step of determining the film grain noise characteristic comprises defining Fourier magnitude data. However, this feature was exceedingly well known in the art. For example, Gray discloses the step of determining film grain noise characteristics that comprises defining Fourier magnitude data (col. 2, lines 22-40. Note that characterizing the spatial correlation coefficients of film grain is equivalent to characterizing the Fourier amplitude spectrum; see page 13, lines 10-12 of the applicant's specification).

Acharya, Wen, and Gray are combinable because they are all concerned with processing a digital image based on noise characteristics. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify the method of Acharya and Wen to include the teachings of Gray. The suggestion/motivation for doing so would have been to eliminate the effects of adverse grain noise, while creating a synthetic grain in the digital image to simulate the look of a particular film type (Gray, col. 2, lines 3-9). Therefore, it would have been obvious to combine Acharya and Wen with Gray to obtain the invention as specified in claim 43.

Referring to claim 45, Acharya, Wen, and Gray do not explicitly disclose that the Fourier spectrum of the watermark signal is shaped to resemble the Fourier magnitude data. However, Wen explains that the watermark signal is scaled based on the film grain noise characteristics, as noted above. Therefore, it would have been obvious to shape the Fourier spectrum of the watermark signal of Acharya, Wen, and Gray to resemble the Fourier magnitude data. The suggestion/motivation for doing so would have been to allow the quality of the image to be preserved even though it contains embedded information (Wen, col. 2, lines 14-25).

12. Claims 50, 51 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Acharya et al., U.S. Patent No. 6,654,501 ("Acharya") and Wen et al., U.S. Patent No. 6,130,741 ("Wen"), further in view of the article entitled "Embedding Visible Video Watermarks in the Compressed Domain" by Meng et al. ("Meng").

Referring to claim 50, Acharya and Wen do not explicitly disclose the step of providing the watermarked image as a single frame in a movie sequence. However, this feature was

exceedingly well known in the art. For example, Meng discloses a watermarked image that is provided as a single frame in a movie sequence (page 474).

Acharya, Wen, and Meng are combinable because they are all concerned with digital image watermarking techniques. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify the watermarked image of Acharya and Wen so that it is a single frame in a movie sequence, as taught by Meng. The suggestion/motivation for doing so would have been to provide the capability of implementing the watermarking process in multiple environments, thereby increasing the flexibility of the system. Therefore, it would have been obvious to combine Acharya and Wen with Meng to obtain the invention as specified in claim 50.

Referring to claim 51, Acharya further discloses the step of providing ownership and tracing information useful in combating piracy in the watermark (col. 1, lines 16-25).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles Kim whose telephone number is 703-306-4038. The examiner can normally be reached on Mon thru Thurs 8:30am to 6pm and alternating Fri 9:30am to 6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amelia Au can be reached on 703-308-6604. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ck
August 5, 2004

Jon Chang
Primary Examiner